CORRELATION OF STEP TRAITS AND BODY MESUREMENTS IN LIPIZZAN HORSES

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The results came out of the scientific project "Analysis and Genetic Improvement of Sport Horse Breeds in Croatia", conducted by the support of the Ministry of Science, Education and Sport in the Republic of Croatia.

Rectangular body format achieved with permanent selection in making modern Lipizzan breeding for driving purposes in Croatia, resulted with long and extended walk. Quadratic body found in the classic Lipizzan type causes shorter and less extended walk which is not desirable characteristic in sport driving horses. Therefore, the goal of this research was to improve, by using digital camera, the measuring of step characteristics which determine Lipizzan working ability. The step length and speed of walk and trot of horses held by reins were analyzed as well as their correlation (Baban, 2003, Baban et al., 2006). This research analyzed correlation of body measurements with traits of length and speed of walk and trot. Strong phenotypic correlation with 71 Lipizzan stallions and mares was determined between the step speed per second in walk at the distance of 20 meters and step speed per second in walk at the distance of 50 meters, which was highly significant on the level $P<0.001$. High significant correlation on the level $P<0.001$ was determined between step speed in trot per second at the distance of 50 m and step speed in trot per second at the distance of 20 meters. The same was between step length in trot at the distance of 50 m and step speed in trot in meters per second at the distance of 20 meters. Strong and high correlation on the level $P<0.001$ was determined between step length in trot at the distance of 50 meters and step speed in trot in meters per second at the distance of 50 meters. High correlation was determined in step speed in trot in meters per second at the distance of 20 and 50 meters (significance level of $P<0.001$). Very strong correlation with the level of significance $P<0.001$ was determined between cannon bone circumference and chest girth with withers height.

SAŽETAK

Pravokutan format tijela, koji je dugotrajnom selekcijom dobiven kod stvaranja modernog, hrvatskog uzgoja lipicanca za zaprežni sport, uvjetuje duži i izdašniji hod, a kvadratni format tijela kod klasičnog tipa lipicanaca uvjetuje kraći i manje izdašan hod, što nije poželjna karakteristika za sportskog zaprežnog konja. Zbog toga je cilj istraživanja bio unaprijediti mjerenje svojstava koja određuju radnu sposobnost lipicanca korištenjem digitalne kamere. Analizirana je dužina koraka u hodu i kasu na ruci, te brzina koraka kao i njihova međusobna povezanost (Baban, 2003., Baban i sur., 2006). U ovom radu, analizirana je povezanost tjelesnih mjera sa svojstvima dužine i brzine koraka i kasa.

Vrlo jaka fenotipska povezanost kod 71 lipicanskog pastuha i kobila utvrđena je između brzine koraka u hodu/sekundi na 20 m u odnosu na brzinu koraka u hodu /sekundi na 50 m što je i visoko signifikantno na razini $P<0.001$. Jaka povezanost utvrđena je za brzinu koraka u kasu/sekundi na 50 m i za brzinu koraka u kasu /sekundi na 20 m što je visoko signifikantno na razini $P<0.001$ kao i između dužine koraka u kasu na 50 m i brzine koraka u kasu u m/sec na 20 m. Vrlo jaka korelacija i visoko signifikantna na razini $P<0.001$ utvrđena je između dužine koraka u kasu na 50 m i brzine koraka u kasu u m/sec na 50 m. Vrlo jaka povezanost utvrđena je s brzinom koraka u kasu u m/sec na 20 i 50 m (visoka signifikantnost na razini $P<0.001$). Vrlo jaka korelacija s visokom signifikantnošću na razini $P<0.001$ utvrđena je između opsega cjevanice i opsega prsa s visinom grebena.